

### REMARKS

Claims 1, 2, 4, 7, 11 to 18, and 28 are pending in the application, of which claims 1, 13 and 28 are independent.<sup>1</sup> Favorable reconsideration and further examination are respectfully requested.

In the Office Action, the claims were rejected under the second paragraph of 35 U.S.C. §112. Regarding claims 1 and 13, the Office Action states:

There are three scenarios might happen upon the counter-doped:

- A. If the dopant concentration of pentavalent substance were less than that of the trivalent substance, then, the conductivity type of the first and second layers remain P-type.
- B. If the dopant concentration of pentavalent substance were higher than that of the trivalent substance, then, the conductivity type of the first and second layers become N-type.
- C. If the dopant concentration of pentavalent substance were the same as that of the trivalent substance, then, the first and second layers are non-conductive (neutralized).

Claims 1 and 13 appear to encompass both first and second layers being counter-doped.

As shown above, the conductivity of the first and second layers could not be determined.

Therefore, the scope of the claims 1, 2, 4, 7, and 11-18 can not be fairly determined.

Neither claim 1 nor claim 13 recites the conductivity of first or second layers. As such, we respectfully submit that the claims are clear as they stand.

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<sup>1</sup> The Examiner is urged to independently confirm this recitation of the pending claims.

In this regard, the claims are drafted so as not to specify conductivities in individual doping layers. Differences in conductivities for an individual layer are contemplated, e.g., at lines 20 and 21 of the substitute specification, which read as follows:

Here, the counter-doping is designed in such a way that the doping of the first doping layer 7 is at least compensated, and may be actually over-compensated.

We are at a loss to understand why the Examiner's inability to determine the conductivities of the first and second layers renders the claims indefinite, particularly in view of the specification, which describes possible different conductivities. We respectfully remind the Examiner that the purpose of a claim is to set forth the metes and bounds of the invention. The specification, on the other hand, is to provide a description of specific embodiments of the claimed invention, which description must support the claims. In this case, the claims were written not to specify conductivities. The specification provides support for different conductivities in an individual layer. Accordingly, claims 1 and 13 are clear as they stand.

Regarding claim 28, the Office Action states the following

**Claim 28 is indefinite because, the limitations appear to encompass the first and second doping layers being both N-type and P-type at the same time.**

In this regard, as was the case above for claim 1 and 13, claim 28 says absolutely nothing regarding the conductivities of the layers. As noted above, the claims are not written in terms of conductivities and, therefore, would cover a variety of layer conductivities provided that the other features of the claim are met. We also refer the Examiner to Fig. 1, which shows regions of individual layers doped and extrinsic regions that are not doped.

For at least the foregoing reasons, claim 28 is clear as it stands.

Regarding claims 11 and 14, the Office Action states:

4. Claims 11, 12 and 14-16 are further rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 11 and 14 recite: wherein the second doping layer and the third doping layer are doped with germanium.

It is well known in the art that "germanium" is a group IV element. Thus, germanium is neither trivalent nor pentavalent. Therefore, claims 11, 12 and 14-16 are also indefinite.

In this regard, there is no connection in the claim, whatsoever, between the pentavalent or trivalent substance and germanium. Rather, all claims 11 and 15 say are that the second doping layer and the third doping layer are doped with germanium. They do not say that the "pentavalent or trivalent substance comprises germanium". Accordingly, claims 11, 12, and 14 to 16 are believed to be clear as they stand.

For at least the foregoing reasons, withdrawal of the §112, second paragraph, rejections is respectfully requested. There being no additional issues, independent claims 1, 13 and 28, and the claims that depend therefrom, are believed to be patentable.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this

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Page : 10 of 10

Attorney's Docket No.: 14603-007US1  
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paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

In view of the foregoing amendments and remarks, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Please apply any additional fees due for this Amendment to deposit account 06-1050, referencing Attorney Docket No. 14603-007US1.

Respectfully submitted,

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